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CENTRAL INTELLIGENCE GROUP

INTELLIGENCE REPORT

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COUNTRY Germany (Russian Zone)

DATE:

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SUBJECT Research at the Oberspreewerk, Berlin

EVALUATE

INFO.

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DIST.

12 December 1947

PAGES

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ORIGIN

SUPPLEMENT

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1. Present tasks at the OSW include

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a. development of an oscillograph for terrain surveys, equipped with a mechanism which makes it possible to retain the picture on the screen and to remove it again, so that the screen can be used for taking other pictures and,

b. connected with above mentioned oscillograph, the development of an oscillograph for projecting short waves up to 3 m.

2. The orders for the above mentioned oscillographs were placed in March 1947; the work is to be finished by the end of this year. The preliminary development work is considered to be finished, which means that work on the first experimental oscillographs can be started within the next few weeks.

3. The development of a satisfactory film layer presented great difficulties. All known materials such as zinc sulphid, calcium, sulphur, phosphorus, etc., proved unsatisfactory. The most sensitive layer in greenish color, calcium cadmium, proved likewise unsatisfactory; however, it could be used for another oscillograph on which work was progressing simultaneously; this apparatus reached the maximum speed of 50,000 km per second.

4. The research work in the field of discoloration of crystals when exposed to electrons, connected with an improvement in the recording speed, has not yet been finished. This research work will be continued as soon as the first models of the oscillograph of 20,000 km per second have been made. This work has to be finished by December 1947 (sic 48?); the oscillograph of a speed of 50,000 km per second must be delivered on the same date.

5. In the research on illuminating substances, progress was made by adding different matters, mainly from the iron group, to different illuminating substances. A potassium chloride mixture in particular has proved very satisfactory, i.e., it meets the requirements in regard to brilliance and steady after-glow. The projected picture is retained by the simple manipulation of a button; it can be removed by switching on a supplementary cathode. The

Document No. 10059
NO CHANGE in Class.
DECLASSIFIED
Class. CHANGED TO: TS S C
DDA Memo, 4 Apr 77 25X1 4
Auth: DDA REG. 77/1763

Date: 26 APR 1978 By:

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Next Review Date: 2008

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film can then be used for taking additional pictures. For the brilliance control, no use was made of the emissivity through which the intensity is controlled by a change of speed of the electrons, or a change in the number of electrons emitted per unit area. Since the quantity of secondary electrons within a certain velocity range of the primary electrons is almost linear, it was only possible to change the acceleration potential within this limit.

6. To carry through this task, it became necessary to widen or to narrow the ray by using a magnetic field. Two control grids (Blenden) were installed behind the plate; between the two control grids is placed a coil through which passes the control current; if measured right, the electrons will be limited to the area involved. In this way, the power of the ray will become adapted to the intensity of the illuminating substance, i.e., be proportional.
7. In addition to the difficulties encountered with the film layer, it was found that the pictures were distorted when a speed of 20,000 km per second was used, or else the film layer became affected. This difficulty was overcome through an alteration of the static deflection plates and of the cathode.
8. At the present time, three physicists, two engineers, and one chemist are working on this project. The costs had been roughly estimated to be 100,000 R.Mk.

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REF ID: A67111